

Hardy Fern Foundation Quarterly



THE HARDY FERN FOUNDATION

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The Hardy Fern Foundation was founded in 1989 to establish a comprehensive collection of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. Many rare and unusual species, hybrids and varieties are being propagated from spores and tested in selected environments for their different degrees of hardiness and ornamental garden value.

The primary fern display and test garden is located at, and in conjunction with, The Rhododendron Species Botanical Garden at the Weyerhaeuser Corporate Headquarters, in Federal Way, Washington.

Satellite fern gardens are at the Stephen Austin Arboretum, Nacogdoches, Texas, Birmingham Botanical Gardens, Birmingham, Alabama, California State University at Sacramento, Sacramento, California, Coastal Maine Botanical Garden, Boothbay, Maine, Dallas Arboretum, Dallas, Texas, Denver Botanic Gardens, Denver, Colorado, Georgeson Botanical Garden, University of Alaska, Fairbanks, Alaska, Harry P. Leu Garden, Orlando, Florida, Inniswood Metro Gardens, Columbus, Ohio, Lewis Ginter Botanical Garden, Richmond, Virginia, New York Botanical Garden, Bronx, New York, and Strybing Arboretum, San Francisco, California.

The fern display gardens are at Bainbridge Island Library, Bainbridge Island, WA, Lakewold, Tacoma, Washington, Les Jardins de Metis, Quebec, Canada, University of Northern Colorado, Greeley, Colorado, and Whitehall Historic Home and Garden, Louisville, KY.

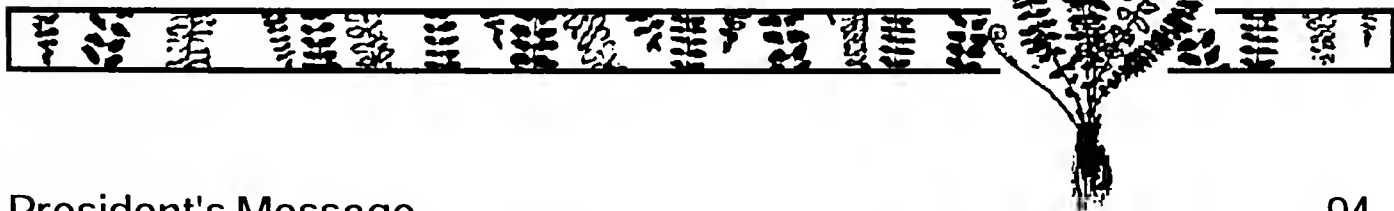
Hardy Fern Foundation members participate in a spore exchange, receive a quarterly newsletter and have first access to ferns as they are ready for distribution.

Cover Design by Willanna Bradner

HARDY FERN FOUNDATION QUARTERLY

QUARTERLY

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The Spore Exchange Needs You!

Please send your spores to our Spore Exchange Director:

Katie Burki
501 S. 54th St.
Tacoma, WA 98408

President's Message - Autumn 2004

Fall is just beginning this week, but here in the Pacific Northwest fall seemed to have arrived a few weeks ago. Our usually dry and sunny August was a surprise in that most of the area received 2 – 3 inches of intermittent rain with cool weather. Now half way through September with continued intermittent rain and cooler days and nights, fall is upon us. The Athyriums are waning in both color and stature, spore has been shed, and the hardening off process begins as the ferns prepare for the long sleep of winter.

Anne Holt, long time HFF board member and past president, passed away this July. Anne was an inspiration to all who got to know her. Her love of plants is quite evident in the landscapes she created especially around her beautiful home on Bainbridge Island. As an HFF board member and president, she was respected for her guidance, common sense and dedication. She is missed and fondly remembered.

The HFF Fern Habitat Display Garden at the Washington Park Arboretum in Seattle, WA will be remaining for an additional year. We thank the Arboretum staff for allowing the display garden to continue for another year. Also a Thank You to fellow board members Lyman Black, Sylvia Duryee, and Pat Kennar for keeping an eye on the display and keeping up its beautiful appearance. Weeding a tenacious eruption of wood sorrel (*Oxalis oreganum*) throughout the bed due to unknown bits of rootstock left in the soil from the previous years' display has been a time consuming chore. The display, comprised of three fern habitats and sixty different ferns, has received much praise and attention.

Michelle Bundy, HFF Curator, has selected a wonderful group of ferns for membership distribution this fall. *Adiantum aleuticum* 'Subpumilum' is truly a rare gem. This dwarf is rarely available and much sought after. *Blechnum chilense* is much desired and deservedly so and is also hard to come by. Its robust nature will make it common in the not too distant future. *Cyrtomium macrophyllum* is an eye catcher with its large wide pinnae, yellowish-green in color. *Dryopteris lepidopoda* rivals *D. erythrosora* for its colorful new growth. And *Polystichum makinoi* is a lustrous beauty, adaptable and easy to grow. Any of these outstanding ferns would make a nice addition to the garden.

Some things on the HFF agenda for the near future are; fall fern distribution to members and affiliated satellite and display gardens; reevaluation of the information gathering process in getting technical data collected, compiled, assessed and information distributed on ferns from throughout the continent, and preparing for our two annual events; the Northwest Flower & Garden Show in February and the Fern Festival in late May.

Autumn, especially after the onset a few rains is the best time to plant. So add a new fern to that void in the landscape (there's always a void to plant in the fern enthusiast's garden), divide and pot up those ferns creeping outside their bounds and share a few of them with friends. Happy fern gardening.

Best regards,

John van den Meerendonk.

From Florida with Hope

Message from the President of the Tropical Fern and Exotic Plant Society September 2004

Greetings to all of our members, families and friends. I just wanted to touch bases with all of you and extend a few encouraging words.

Many of us have been immersed in a nerve-wracking game of "Dodge the Hurricane(s)" this summer, and I'm not talking about the University of Miami's football team. It appears that unusually large and destructive hurricanes played a major part in all of our lives recently, and the impending, reluctant and sometimes dead-on storms have taken a mental as well as physical toll on all of us.

But as a native Miamian, and Floridian, I've weathered many storms including probably one of the most destructive, Andrew.

One thing I can attest to about human beings is that we are very resilient. Although at times we feel like fragile creatures, our resiliency can bear up under an enormous amount of pressure.

One of the ways we cope is to find projects and hobbies to occupy ourselves. Happily, many of us have chosen our plants and gardens as places of solace and refuge. Even though our gardens may not be all that they were, we take delight in watching them rebound, as with our personal lives.

If you were one of those who has experienced a trying period over the last couple of months, know that you have company and that we are basically all in the same battle of the weather together.

May the coming days bring calm and a return of normalcy to all of us.

-Reggie Whitehead



Memorials

In Memory of Ruth Hofmann

Jocelyn Horder

In Memory of Anne Holt

Liz and Lyman Black

Jocelyn Horder

With thanks from the Hardy Fern Foundation

Fern Foray at Botany 2004

We left Snowbird Resort just after 7:30 am on the first day of August, headed for rare ferns and lots of climbing. About an hour later, we arrived at the confluence of American Fork Canyon with Tank Canyon, at an elevation of 5900–6000 feet. Lead by Mike Windham, we left the bus and started up to find a number of rare species, hybrids and subspecies on the Mississippian limestone.



Chris Haufler with *Cystopteris haufleri*.

The first fern was *Pellaea glabella* subsp. *simplex*. This is a common apogamous tetraploid which has evolved to reproduce in less moist conditions by not requiring those fragile sperm for fertilization. Nearby was the rare *P. glabella* subsp. *occidentalis*, which is diploid and reproduces sexually. This is the only known location where both subspecies occur together.

Up a few more boulders, we found *Cheilanthes feei* and *Cystopteris utahensis*, the Utah bulblet fern. The latter is descended from *C. bulbifera* and *C. reevesiana* and has bulblets which are usually aborted because they do not dehisce. Next was the only known plant of *C. fragilis* x *C. utahensis*, which has petiole color intermediate between the dark colored *C. reevesiana* ancestor and green/straw colored *C. utahensis*. Also in the area were *C. tenuis* and *C. tenuis* x *C. utahensis* with dark petioles.

Our next stop was at the Doughnut Falls trailhead where we had lunch and then climbed another steep trail at 7400–7900 feet to a creek bed and the falls, also Mississippian limestone. Here we quickly located several plants of *Cystopteris* “*haufleri*” and spent some time taking pictures of Chris Haufler beside his namesake. This hexaploid fern of unknown parentage is newly defined and not yet published. Nearby was a hybrid, *C. “haufleri”* x *C. tenuis*, and *C. tenuis*. Across the creek and up some really steep and slick rocks were *Asplenium viride* and *Pellaea breweri*.

After a long slide down the rocks and hike back to the bus, we were off to Brighton site in Big Cottonwood Canyon. This heap of granite boulders was at 8750–8800 feet and easy to reach. We crossed a small wet area with lots of *Equisetum arvense* and then began climbing the boulders. A number of large *Cryptogramma acrostichoides* were quickly located, and then *Selaginella watsonii* and *Cystopteris tenuis* were found growing in cracks between the rocks. Several plants of hybrid *C. fragilis* x *C. tenuis* were found near the top in a long diagonal crack. This was a very pleasant place and we sat about on the rocks for a short while, discussing what we’d found.

Our last stop was at a creek in Big Cottonwood Canyon, right beside the road. Here was a large patch of *Equisetum x ferrissii* with a small patch of one parent, *E. laevigatum* growing with it. Just across the creek, a patch of the other parent, *E. hyemale* subsp. *affine*, was showing grey-green spores and we were able to see the elaters with a 20X lens. Mike showed us how the cone on the hybrid could be crushed to reveal only white powder and no viable spores.

It was getting late so we headed back to the resort. During the whole trip, Mike had provided lots of information about the parentage, identifying characteristics and habitats of all the ferns. With the exceptions of *Pellaea glabella* subsp. *simplex*, *Equisetum x ferrissii*, *E. hymale*, *E. arvense* and *Cystopteris tenuis*, the pteridophytes we saw were considered rare so we did not collect.

On the resort grounds, *Equisetum arvense* and *Pteridium aquilinum* grew in large patches in an area where several people saw a cow moose with twins.

After a day of very interesting papers and the ever-delicious AFS luncheon on Monday, we boarded the bus in a rain for a field trip to a high altitude (over 9400 feet), quartzite area called Albion Basin at the head of Little Cottonwood Canyon. The rain continued to fall so some of us donned rain gear. Those who had none donned a large plastic tarp and proceeded up the trail single file like a Chinese dragon. On a rise that paralleled the trail, a bull moose followed us up. A rock face held *Cystopteris tenuis*, *C. tenuis x C. fragilis* and *Polystichum lonchitis*. The vegetation underfoot was very slick so it took a while for all of us to get up to see these.

Before long, the moose came off the rise and began moving toward the trail below us, the only trail back down. Our leader and moose expert explained that bull moose are very unpredictable and somewhat territorial. He suggested that we forget about the rest of the fern treasures farther up the trail and head down before we got cut off. We all, even those who stopped to take pictures, made it back safely and left the moose to his mountain.

Thanks, Mike, for a rich and well planned adventure. We had a great time.

—Sue Hollis



The PTERIDOPHYTES of MEXICO

John T. Mickel

and Alan R. Smith

*Memoirs of
The New York Botanical Garden
Volume 88*

The Pteridophytes of Mexico was published by the Memoirs of the New York Botanical Garden on June 30, 2004. It is their Volume 88 with 1055 pages, 328 full page plates and 1008 species treated. Authors John Mickel and Alan Smith spent many years in its preparation. Available for \$125. plus postage from The New York Botanical Garden Press, 200th Street and Kazimiroff Blvd., Bronx, NY 10458-5126. John says that it's a "heavy read" - 6lbs 2ozs!

ATTENTION FERN GROWERS

Sue Olsen

The Hardy Fern Foundation would like to supplement the reports from our affiliated gardens with a Special Issue featuring ferns in private gardens and nurseries. It is intended to be as comprehensive as possible covering a wide range of climatic zones and microclimates. **For that we need your help.** Now that the gardening hours are quieting down could you please take the time to make note of what does and does not do well in your garden or area and include observations and comments. Cultivation and weather details would make it especially valuable. We published a number of reports many years ago and they were very well received by our readers (and were also educational for the writers!) We look forward to expanding on this knowledge. Illustrations would also be welcome.

Kindly send them to me at:

2003 128th Ave. S.E.
Bellevue, WA 98005
USA

Or via e-mail at Foliageg@juno.com

Many thanks!

DRYOPTERIS ***CRASSIRHIZOMA***

Thick-stemmed Wood Fern

James R. Horrocks - Salt Lake City

The species name means literally “thick rhizome”, a good description, as the rhizome is truly massive in its proportions to most other *Dryopteris* species. This is an interesting species widespread in northeastern Asia, native to Japan, China, Korea and northwest into Manchuria and Siberia, where it can be locally rather common. It has also been reported from Sakhalin Island and the Southern Kuril Islands.



Dryopteris crassirhizoma

This is a medium sized fern which forms an attractive vase-shaped cluster of fronds. It is found growing on wooded slopes in its native haunts and is often found in sheltered spots. It can form huge colonies in the wild due to its habit of forming offshoots. It may be confused with certain other *Dryopteris* species which themselves resemble *D. affinis*. *D. crassirhizoma*, however, lacks the black blotch at the base of the costae that is

diagnostic of *D. affinis*. Also *D. crassirhizoma* has thick, brown, rather glossy scales on the stipes and crown, pinnae that are pinnate-pinnatifid rather than truly bipinnate, segments that are longer and narrower with margins mostly entire, and rounded and entire apices. In full grown specimens, the massive size of the crown should set it apart from many other species. A sure give-away is its habit of lowering its fronds to the ground overnight with the onset of cold weather in the fall. According to Rush, there are three hybrids in Japan.

Description: The rhizome is short and stout, forming an erect crown that is massive in its proportions, occasionally setting offshoots. The fronds are considered deciduous, although if protected with fallen leaves or snow, they usually remain green through winter. (*Ed. Note...it is evergreen in the Pacific Northwest.*) The stipes are short in proportion to the rest of the blade and are membranous and crowded. The stipe scales are thick, brown or straw-colored, and glossy, extending down onto the rhizome itself. The scales are narrowly lanceolate to linear, extending up onto the rachis where they are much shorter. The scales gradually narrow at the tip, are spreading to deflexed, and rather unequal. The blade is 2 to 3 ½ feet in length, standing erect and arching. Martin Rickard notes that except for its paler green color and more abundant fronds, it is somewhat similar to *D. wallichiana*. The blade outline is “oblanceolate to broadly so” spreading in width from 6 to even 8 inches and broadest above the middle. The fronds are considered pinnate-pinnatifid to almost bipinnate with thirty five or more pairs of close set, herbaceous, linear-lanceolate pinnae, the frond tapering toward the base. The pinnales are narrowly oblong, round to quite obtuse (truncate) or weakly crenate-serrate. The sori are located on the upper half of the blade between the costae and the margins in two series on the lower half of the pinnales and on the lower half of the forked veinlets. The indusia are orbicular-reniform.

Culture: This is a relatively easy fern to grow in the woodland garden, doing better in more protected sites. The massive crown from which the crowded circular display of fronds emerges can be four inches across. It makes an excellent single specimen focal point in the garden, growing well under medium light and in moist-dry humusy soil. Its pale yellow-green fronds are a splendid contrast to the darker green and blue-greens of the garden setting. As has been mentioned, with the first frost the fronds recline to the ground and may remain green all winter if covered with leaves or snow. It is perhaps reminding us all to relax and rest during the coming winter months with the distant anticipation of spring.

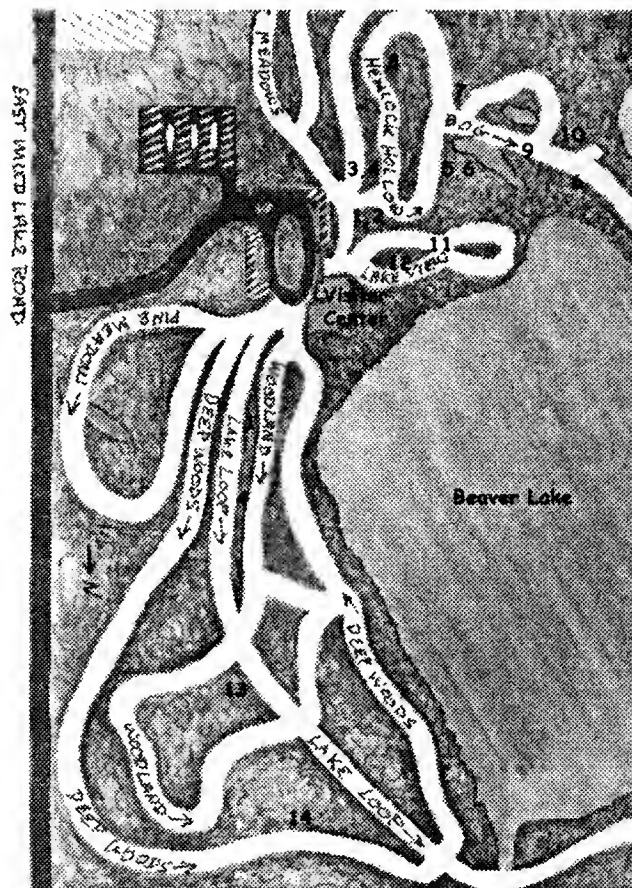
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Beaver Lake Nature Center Trail Guide for Ferns

Beaver Lake Nature Center in Baldwinsville, NY is a 600 acre Onondaga County Park with nine miles of maintained walking trails across gentle and varied terrain where you and your family are invited to restore your connection to the earth. Displays, information, light refreshments and a gift shop are all at the Visitor's Center with many varied activities offered throughout the year. HFF member Danny Fernando and his students Andrew Stergio, Nadine Lont, Sarah Johnson and T.J. Conley at the SUNY Department of Environmental Science and Forestry created this illustrated Spring Guide to the Ferns of Beaver Lake this past April. It will be helpful not only to fern lovers, but to all visitors as well. Well done!

SPRING GUIDE TO THE FERNS OF BEAVER LAKE*



**This trail guide represents a sample of the ferns present at Beaver Lake on April 14-15th, 2004. The numbers on the map correspond to the locations of the ferns described in this guide.*

TYPICAL FERN STRUCTURE AND TERMINOLOGY:

The **frond** is the "leaf" of a fern. Fronds can be either fertile or sterile, having spores or no spores, respectively. **Sterile fronds** can be called "vegetative." Each frond has **pinnae** (singular: pinna) or "leaflets." These pinnae are then further subdivided into **pinnules** or "subleaflets." Each **pinnule** may or may not be subdivided yet again into **pinnulets** or "lobes." The stalk arises from the **rhizome** or "horizontal stem." The stalk becomes the **rachis** or "axis" where the pinnae are attached. On the underside of the frond, you may or may not find **sori** (singular: sorus) which consist of an **indusium** or "protective covering" and spores.

1. Sensitive Fern (*Onoclea sensibilis*)

Their light-green vegetative fronds are sturdy, leather-like, broad, and triangular. When exposed to frost, these fronds will shrivel and turn brown. Fertile fronds are dark brown when mature and house spores in bead-like structures. These ferns prefer fields and moist banks.



Photos by Andrew Stergio and Nadine Lont

2. Bracken Fern (*Pteridium aquilinum*)

The frond, which is highly segmented into a triangular shape, sits on top of a long rigid rachis. Sori lie along the margins of the underside of the pinnules. This is one of the most common ferns in Central New York earning the nickname “weed” because it spreads quickly. Native Americans used it’s boiled roots in weaving.



Photos by Danny Fernando and Nadine Lont

3. Christmas Fern (*Polystichum acrostichoides*)

There is a distinctly large pinnulet at the upper base of its pinnules, which makes it look similar to a Christmas stocking. Sori generally cover the entire underside of the pinnule, however, they sometimes can be seen as two rows. The name comes from its lively green color maintained during the winter.



Photos by Nadine Lont and Danny Fernando

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Spring Guide to the Ferns of Beaver Lake *continued from page 101*

4. Evergreen Wood Fern & Spinulose Wood Fern (*Dryopteris intermedia* and *Dryopteris spinulosa*)

There are several Wood Ferns, and they are hard to distinguish between. To distinguish the Evergreen from the Spinulose Wood Fern look at the first and second set of pinnae. If the first set of pinnules is shorter than the second set, you have found the Evergreen Wood Fern. The pinnules of both are toothed with sori in two rows on the underside.



Photos by Nadine Lont

5. Royal Fern (*Osmunda regalis* var. *spectabilis*)

This fern hardly resembles a fern at all. Its light green fronds look like the leaves of a locust tree. The fern will appear to have irregularly smaller pinnae toward the tops of some fronds. When looking closer, you'll notice that these are the fertile fronds. Spore cases grow atop the fertile frond. This fern grows in clusters with a built up rootstock base.



Photos by Danny Fernando and Nadine Lont

6. Cinnamon Fern (*Osmunda cinnamomea*)

The vegetative fronds are almost as tall as the Ostrich Fern's fronds, but the Cinnamon Fern has brown woolly tufts at the base of the stalk near the roots. The roots are strongly embedded in the soil forming a small mound. Fertile fronds grow tall and upright and have distinct cinnamon-brown colored spore cases.

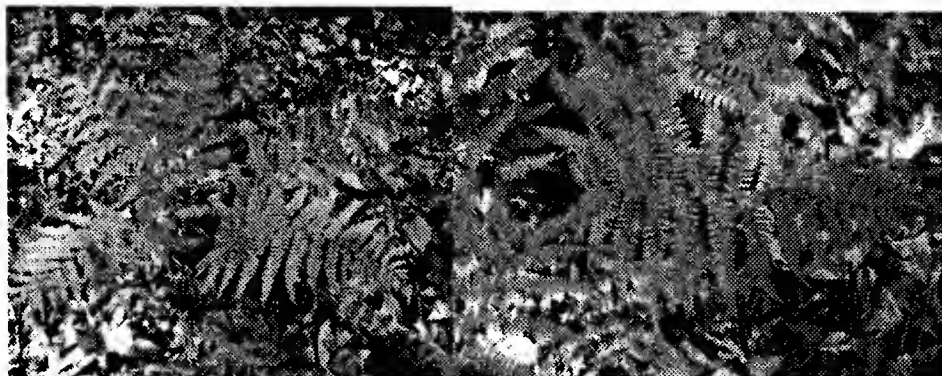


Photos by Danny Fernando and Andrew Stergio

7. Northern Lady Fern

(*Athyrium filix-femina subsp. Angustum*)

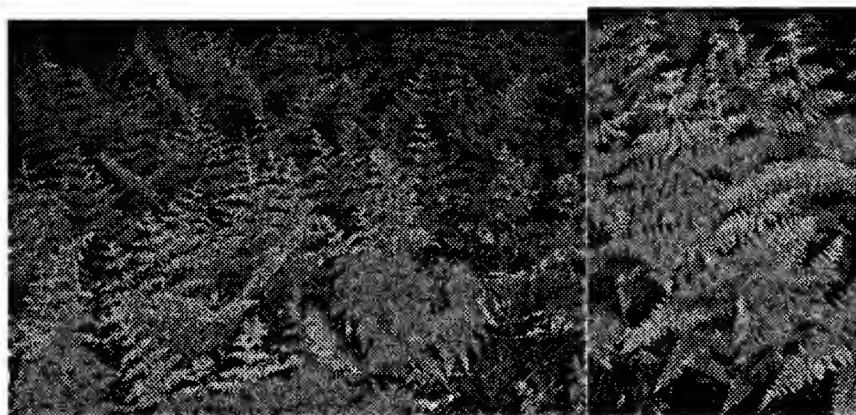
Its fronds are smooth, delicate, and can be found growing in a cluster. The lowest pairs of pinnae are small compared to the upper pinnae and they point toward the ground. Its pinnules are toothed with sori spread along the axis. Indusia (coverings over the spores) are hairy and slightly curved. The Northern Lady Fern is common in Central New York but there are also several species and sub-species of Lady Fern generally found in North America.



Photos by Danny Fernando

8. Hay-Scented Fern (*Dennstaedtia punctilobula*)

These ferns are usually found in large colonies arising from underground rhizomes. As the common name states, on a dry summer day, these fern colonies tend to smell like hay. The spores are within cup-shaped indusium located on the underside margins of the pinnules (look close to see).



Photos by Nadine Lont

9. Rattlesnake Fern (*Botrychium virginianum*)

This fern is the largest of the Grape Ferns. It is easily distinguishable from other *Botrychium* in that its pinnae are thin and not leathery. Like other *Botrychium*, the fronds are triangularly shaped and only 1 frond is produced per year. The stalk is long and usually pink at the base. The sporophyll (fertile leaf) grows from the stalk at the point where the vegetative part (lowest pinnae) begins.



Photos by Danny Fernando

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Spring Guide to the Ferns of Beaver Lake *continued from page 103*

10. Marsh Fern (*Thelypteris palustris*)

This fern has thin delicate pale-green fronds with rounded pinnules. The lowest pair of pinnae and other pinnae are perpendicular to its rachis. Its sori are covered by the infolding margins of the pinnule that they occupy. It is characteristically known for its twisting growth form.



Photos by Danny Fernando

11. Interrupted Fern (*Osmunda claytoniana*)

Their vegetative fronds look similar to the Cinnamon Fern, but their fertile fronds are much different. The fertile fronds of Interrupted Fern have distinct “interruptions” in the center of what appears to be sterile fronds. These “interruptions” are the fertile pinnae that turn brown and release clusters of spores when developed.

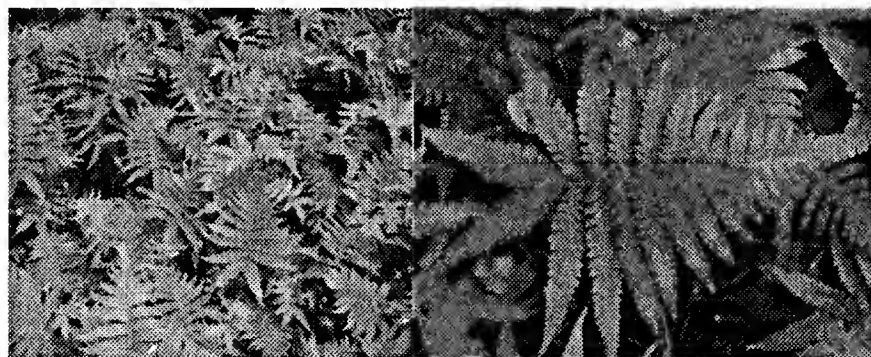


Photos by Danny Fernando and Nadine Lont

12. Long Beech Fern (*Northern Beech Fern*)

Thelypteris phegopteris (*Phegopteris connectilis*)

The lowest set of pinnae point downward and taper quickly giving it a distinctly triangular shape. Lady Ferns also have their lowest pinnae pointing downwardly, but the lowest pinnae of Lady Ferns are smaller in comparison to the rest of its pinnae. The Long Beech Fern further differs from the Lady Fern in that it grows scattered along a rhizome. Sori grow in rows along the margin of the pinnules. The common and Latin names above can be used interchangeably.



Photos by Danny Fernando

13. Ostrich Fern (*Matteuccia struthiopteris*)

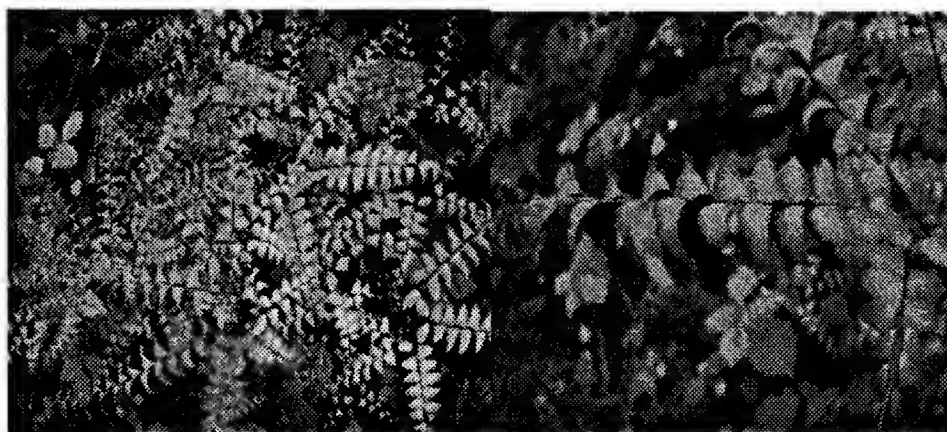
It has impressive vegetative fronds shaped like ostrich plumes. It grows in distinct clusters with a large rootstock. Fertile fronds will appear in the center of the clustered vegetative fronds. The fertile fronds are dark brown to reddish and about half the height of the vegetative fronds. This is one of the largest ferns in Central New York and the fiddleheads are the most commonly eaten in North America.



Photos by Nadine Lont

14. Maidenhair Fern (*Adiantum pedatum*)

The delicate horseshoe shaped fronds are almost parallel to the ground sitting atop long rachises. Their distinctive wire-like rachises are a shiny dark brown and their pinnae are bluish-green. These fronds were used by Native Americans to decorate woven baskets. Its indusia are elongated or round on the upper margin of the underside of the pinnule.



Photos by Nadine Lont

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Acknowledgement

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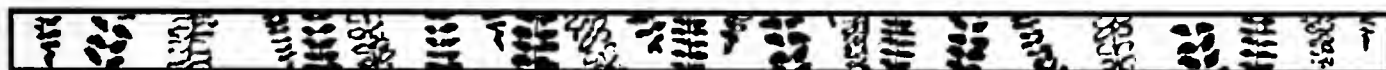
Prepared By

Andrew Stergio, Nadine Lont, Sarah Johnson, TJ Conley, and Danny Fernando
SUNY-Environmental Science and Forestry

For more information on ferns of Onondaga, please check:
www.esf.edu/efb/fernando/courses.htm

Welcome New Members

Mark Andrews	Joanne Harden	Bob Quimby
Jan Anglin	Nancy Hargis	Jeff Reed
Dawood Aydani	Virginia Hayes, Curator	Tom Reynolds
Paul Babikow	Jim Hendricks	Bill Ross
Phil Barber	Jim Hessler	Matt Rubal
Bonnie Barringer	Kevin Hildebrand	Dave Rubright
Carol Barton	Jack Hildinger	Jim Salmon
Steve Batica	Charles Hirsch	Richard Saul
Tom Batt	Wright Holland	Terry Schindler
Gary Baucom	Clyde Holloway	John Schmidt
Jeff Beasley	Joe Howe	Jim Scoggins
Joey Billeaud	Pat Howell	Dan Segal
Kurt Bluemel	Pete & Lucille Hughes	Alan Shapiro
Mike Boyd	Daniel Hutton	Heide Sheesly
Pat Brinson	Steven Iverson	Carol Shubert
Francisco Castillo	Bruce Jordan	Terry Smith
George Cavano	Bill Kelley	Charles Smoleny
Doug Chapman	Jeffrey La Course	Jim Snyder
Mark Clemmons	Ben Langlinais	Greg Speichert
Billie Clifton	Woody Lanier	Tim Spencer
Dave Cockcroft	Bill Lavalley	Ken Spikens
Gus Corso	Barry Layman	Terry Stalcup
Jim Costello	Robin Little	Frances Stangroom
Steve Davis	Steve Lubic	Sherry Steele
Tom Derby	Eric Lundberg	Lyle Stokley
Duane Diebert	Leon Macha	Kevin Sullivan
Debra Echel	Shirley Marpe	Steve Thomas
Scott Farnsworth	Skeeter McCorkle	Julie Thomas
Dave Ferrucci	Dave McKenzie	Peter Van Berkum
Paul Fowles	Kirk Menshaw	Jack Van De Wetering
Christin Fuqua	Kurt Messick	James Van Hoorn
Jim Glover	Jerry Meyers	Rob Vanderdruk
Jose Gonzales	Tom Moeller	Herman Vess
Phil Goodfellow	Wilbur Mull	Rick Watson
Robert Grove	Caryn E. Neumann	Kirk Weiss
Brad Grover	Dave Nizinski	Don Whiddon
John Gunderson	Johnny Patterson	Maggie Wiles
Jay Guy	George Pealer	Marcia Young
George Hackney	Andrew Proud	




In Memoriam

It is with sadness to report that Anne Clark Holt died this past July. Anne served for many years on the HFF board and also served as president of the organization. Her easy going manner, her love of plants and the natural world, and her dedication to the foundation will be missed.

Anne grew up in Seattle, graduated from Smith College, and settled in Seattle where she raised her family. Anne was a long time member of the Seattle Garden Club where she became well acquainted with other plant enthusiasts and notable plants people in the area, some of whom were to become founding members of the Hardy Fern Foundation. Anne was a member of many gardening and plant organizations. In the fifties Anne and her husband Irving bought waterfront property on the northwest side of Bainbridge Island which was used as a summer and weekend get way. Anne moved permanently to Bainbridge Island after the raising of her family and the death of her husband Irving. Anne went back to school and earned a degree in landscape design from South Seattle Community College. Anne established an informal nursery named Agate Nursery, at her home. She would grow and raise plants that were of interest to her and people could come select and buy plants that were growing throughout the landscape. Anne remarried in 1986, and Brantley became her loyal & loving companion. Through the years the landscape around the house matured into beautiful gardens with many rare and interesting trees, shrubs, ferns and other plants. The gardens were often a destination for groups on garden tours from throughout the area.

In the last months Anne was involved in the landscape design of the new Grace Episcopal Church of which she was a member. Even with the advancing rigors of Parkinson's Disease, she would move pleasantly forward, planning and envisioning the establishment of this landscape which is to comprise an arboretum. A couple of years ago, Anne put her property into a conservation easement so that the natural and landscaped areas she so loved will remain preserved. To the end her love of plants and natural spaces gave her joy. Our sincere condolences to her husband, Brantley and family.

-John van den Meerendonk



THE HARDY FERN FOUNDATION
QUARTERLY

The Hardy Fern Foundation Quarterly is published quarterly by the Hardy Fern Foundation,
P.O. Box 166
Medina, WA 98039-0166.

Articles, photos, fern and gardening questions, letters to the editor, and other contributions are welcomed!

Please send your submissions to:
Sue Olsen
2003 128th Ave SE,
Bellevue, WA, 98005

Newsletter:

Editor: Sue Olsen
Assistants: Michelle Bundy
Graphics: Willanna Bradner (cover design)
Karie Hess (inside design)

Hardy Fern Foundation

S P O R E E X C H A N G E L I S T 2 0 0 4

To order: Please print your selections in alphabetical order. Include 50 cents for each fern requested (check payable to the Hardy Fern Foundation) and a self-addressed stamped envelope. No charge for overseas members but please enclose an international postal coupon (2 for large orders) and an envelope. Please list a first and second choice. Some items are limited so order early for best selection. If both of your choices are unavailable would you like to donate the 50 cents to the HFF or receive a refund? If neither is indicated, we will consider it a donation to our endowment fund. Thanks for your support!

Your fresh spores are always appreciated!!!

Mail requests to:

Katie Burki

501 South 54th Street

Tacoma, WA 98408

Genus species	var. or cv.	Year	Donor
Adiantum aleuticum	'Imbricatum'	'04	Olsen
Adiantum aleuticum	'Subpumilum '	'04	RSF
Adiantum aleuticum	'Subpumilum'	'03	Duryee
Adiantum aleuticum	'Subpumilum'	'03	Taylor
Adiantum aleuticum	'Imbricatum'	'02	Steffen
Adiantum pedatum		'02	Several
Arachniodes miqueliana		'04	Gassner
Arachniodes simplicior	'Variegata'	'04	RSF
Arachniodes standishii		'03	RSF
Asplenium foreziense		'00	Seibert
Asplenium platyneuron		'03	Briegel
Asplenium septentrionale		'04	Gassner
Asplenium trichomanes		'03	Duryee
Asplenosorus ebenoides		'03	Olsen
Athyrium distentifolium		'04	Gassner
Athyrium niponicum		'00-'03	Olsen
Athyrium otophorum		'00-'02	Several
Athyrium pycnocarpon		'00	???

<i>Athyrium thelypteroides</i>	??	???
<i>Blechnum cordatum</i> (chilense)	'03	Olsen
<i>Blechnum cordatum</i> (chilense)	'03	RSF
<i>Blechnum fluviatile</i>	'00	Olsen
<i>Blechnum niponicum</i>	'03	Choyke
<i>Blechnum penna-marina</i> 'Cristatum'	'03	Duryee
<i>Blechnum penna-marina</i>	'03	Duryee
<i>Blechnum spicant</i>	'03	Taylor
<i>Blechnum spicant</i> 'Crispum'	'03	Olsen
<i>Blechnum spicant</i> 'Rickard's Serrate'	'03	Duryee
<i>Blechnum spicant</i> "forked" cw WA	'03	Olsen
<i>Blechnum wattsii</i>	'00	RSF
<i>Botrychium dissectum</i>	'03	Briegel
<i>Botrychium multifidum</i>	'00	Olsen
<i>Botrychium virginianum</i>	'02	Briegel
<i>Ceterach officinarum</i>	'03	Burki
<i>Cheilanthes intertexta</i>	'99	Schwartz
<i>Cryptogramma acrostichoides</i>	??	Gassner
<i>Cryptogramma crispa</i>	'04	Duryee
<i>Cyrtomium falcatum</i>	'03	Briegel
<i>Cyrtomium falcatum</i>	'03	McGill
<i>Cyrtomium macrophyllum</i>	'01	Bundy
<i>Cystopteris</i> sp. (Mexico, hardy Zone 7)	'04	Gassner
<i>Cystopteris dickeana</i> (Scotland)	'04	Gassner
<i>Cystopteris fragilis</i>	'03	Briegel
<i>Cystopteris regia</i> (Germany)	'04	Gassner
<i>Dennstaedtia punctilobula</i>	'02-'03	Briegel
<i>Doodia media</i> (D. australis)	'04	RSF
<i>Dryopteris arguta</i>	'03	Olsen
<i>Dryopteris bissetiana</i>	'03	RSF
<i>Dryopteris blanfordii</i>	'04	Gassner
<i>Dryopteris celsa</i>	'00	RSF
<i>Dryopteris celsa</i>	'03	Briegel
<i>Dryopteris championii</i>	'03	RSF
<i>Dryopteris clintoniana</i>	'04	Olsen

continued on page 110

Spore Exchange List *continued from page 109*

Dryopteris corleyi	'03	RSF
Dryopteris cristata	'03	Briegel
Dryopteris cystolepidota	'00	RSF
Dryopteris cystolepidota	'03	RSF
Dryopteris decipiens	'04	RSF
Dryopteris dilatata 'Jimmy Dyce'	'03	Duryee
Dryopteris erythrosora	'00	RSF
Dryopteris erythrosora	'03	Hay
Dryopteris expansa	'03	Taylor
Dryopteris formosana	'03	RSF
Dryopteris lepidopoda	'03	RSF
Dryopteris lepidopoda	'04	Olsen
Dryopteris ludoviciana	'01	Mandeville
Dryopteris ludoviciana	'03	Hay
Dryopteris ludoviciana	'03	RSF
Dryopteris marginalis	'02	Briegel
Dryopteris marginalis	'03	Hay
Dryopteris polylepis	'03	RSF
Dryopteris pycnopteroides	'03	RSF
Dryopteris pycnopteroides	'04	Gassner
Dryopteris ramosa	'04	Gassner
Dryopteris remota	'01	RSF
Dryopteris remota	'03	Hay
Dryopteris sacrosancta	'00	McGill
Dryopteris scottii	'03	RSF
Dryopteris sieboldii	'03	Olsen
Dryopteris spinulosa	'03	Briegel
Dryopteris stenolepis	'04	Duryee
Dryopteris sublacera	'03	RSF
Dryopteris sublacera	'04	Gassner
Dryopteris tokyoensis	'03	RSF
Dryopteris villarii	'04	Gassner
Dryopteris wallichiana	'01	Bundy
Gymnocarpium jessoense	'04	Gassner

Gymnocarpium oyamense	'03	Duryee
Hypolepis millefolia	'04	Gassner
Llavea cordifolia	'03	Schwartz
Lygodium scandens	'02	Briegel
Matteuccia struthiopteris	'03	Briegel
Nephrolepis exaltata	'03	Briegel
Onoclea sensibilis	'03	Briegel
Pellaea brewerii	'00	Schwartz
Pellaea cordifolia	'00	Schwartz
Pellaea viridis	'01	McGill
Pentagramma triangularis	'01	Duryee
Phyllitis scolopendrium 'Digitata'	'01	Mandeville
Phyllitis scolopendrium	'01	RSF
Polypodium glycyrrhiza	'01	Taylor
Polypodium glycyrrhiza	'03	RSF
Polypodium interjectum	'03	RSF
Polypodium polypodioides	'03	Briegel
Polypodium scolieri	'01	RSF
Polypodium scolieri	'04	RSF
Polystichum acrostichoides	'03	Briegel
Polystichum aculeatum	'04	Gassner
Polystichum andersonii	'03	Taylor
Polystichum lonchitis	'03	Taylor
Polystichum luctuosum	'02	Olsen
Polystichum luctuosum	'03	RSF
Polystichum luctuosum	'04	Duryee
Polystichum mayebarae	'03	Olsen
Polystichum munitum	'00	Several
Polystichum neolobatum	'01	RSF
Polystichum retrosopaleaceum	'04	Gassner
Polystichum scopulinum cw Teanaway	'01	Duryee
Polystichum setiferum cv aff. 'Pulcherrimum'	'03	Olsen
Polystichum setiferum	'03	Duryee
Polystichum sp. (hardy collected in Yunnan)	'03	Olsen

continued on page 112

Spore Exchange List *continued from page 111*

Polystichum sp. (similar to fine P. braunii)	'04	Gassner
Polystichum tsus-simense	'04	Duryee
Polystichum woronowii	'04	Gassner
Polystichum xiphophyllum	'04	Duryee
Pteridium aquilinum	'03	Briegel
Pteris actinopteroides (Zone 8)	'04	Gassner
Pteris vittata	'03	Briegel
Pyrrosia shearerii	'03	Olsen
Thelypteris hexagonoptera	'03	Briegel
Thelypteris noveboracensis	'03	Briegel
Thelypteris palustris	'00	Schott
Thelypteris patens	'02	Briegel
Woodsia intermedia	'04	Gassner
Woodsia polystichoides	'03	Olsen
Woodsia pseudopolystichoides	'04	Gassner
Woodsia scopulina	'03	Taylor
Woodwardia areolata	'03	Briegel
Woodwardia fimbriata	'02	Mandeville
Woodwardia virginica	'03	Briegel

Donors

Kevin Briegel
 Michelle Bundy/Rhododendron Species Foundation
 Helen R. Choyke
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 Wolfram Gassner
 Terry Hay
 Sue Mandeville
 Peggy McGill
 Sue Olsen
 David Schwartz
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 Richie Steffen/Miller Botanical Garden
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From

Ohio
 Washington
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 Alabama
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 Czech Republic
 Washington
 Washington

Itinerary for the "Feast in the East - 2005"

Tour of NJ, DE, PA, MD and NY
Sponsored by the British Pteridological Society and
the Hardy Fern Foundation

Contact John D. Scott
55 Hertzog School Road
Mertztown, PA 19539
bps2005@aol.com
www.bps2005.org

Links to sites and all forms are available from the website.
Changes will be emailed to all registrants.

Monday, June 27

Best Western Conf. Center Concordville *for early arrivals.*

John and Margaret Scott will be at the motel early afternoon and will be available
by cell phone until 11 pm. Please stop into our hospitality suite after check in.

Day 1 - Tuesday, June 28

Registration 9:00-10:00
Leave *Concordville BW* 10:30 am
Pine Barrens of NJ
Box Lunch
Welcome Dinner 7 pm (BW)

Day 2 - Wednesday, June 29

Springwood (Dr. Richard Lighty's Garden)
Winterthur
Welcome and *Box Lunch*
Ecology Tram Tour / Native fern garden (newly planted 2004)
Tour: English influence on American Furniture *or* Rare Books & stroll
Concordville BW 6 pm
7:30 Talk: *Intro to the Piedmont Flora*

Day 3 - Thursday, June 30

Mt. Cuba
Box Lunch
Wild areas en route to Longwood
Arrive Longwood 4:45
Welcome - Tour fern walk
Dinner at Longwood Gardens
Fountain Display at dark
Concordville BW

Day 4 - Friday, July 1

Tyler Arboretum
Barnes Arboretum
Lunch on your own
Henry Foundation
Chanticleer Gardens
Dinner Buffet at Radnor Hotel
Talk 8 pm: *Pictorial key to PA ferns*

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Day 5 - Saturday, July 2

Chester Co., PA serpentine

MD – Susquehanna

Box Lunch

Garden of HFF member Jerry Hudgens

Comfort Inn Lancaster, PA

Talk: *Dryopteris, Polypodium, Asplenium*

OR

Dutch Apple Dinner Theater (Extra fee and reservation)

Day 6 - Sunday, July 3

Lancaster Co., PA

Asiatica Nursery – Lewisbury

Comfort Inn Lancaster, PA

Day 7 - Monday, July 4

Berks County

Box Lunch

Rockland Botanical Garden (The Scott's – HFF members)

Dinner on route to Motel

Whitehaven Comfort Inn

Day 8 - Tuesday, July 5

Nescopeck St. Park

Delaware Water Gap

Sussex Branch Trail

Poughkeepsie BW

Day 9 - Wednesday, July 6

Bartholomew's Cobble, MA

Buffet Lunch

Innesfree Garden

Carey Arboretum

Stony Clove Notch, NY

Poughkeepsie BW

Dinner on your own

Day 10 - Thursday, July 7

Lyndhurst

Box Lunch

Mickel's Garden or Tarrytown area

Buck Garden, NJ

Best Western New Hope

Dinner on your own and tour New Hope

Day 11 - Friday, July 8

Bowmen's Hill (Wherry Fern Trail)

Box Lunch

Schieber's Garden

Morris Arboretum (Fern House)

Farewell Dinner (Phila.)

Show and Tell: *BPS/HFF 2003*

Concordville BW

Saturday, July 9 – The Scott's will stay on for
emergency transport to the airport !!

Return Slip BPS Pennsylvania 2005

I intend to join the excursion to Philadelphia in 2005. ☐

I enclose a cheque for \$300 per person made payable to John Scott ☐

or

have sent payment via Paypal (will be acknowledged via email) ☐

I still hope to come. ☐

I will not be able to participate. ☐

I require a single room. ☐ I require a double room. ☐

I have received a copy of the BPS Safety Code. ☐

I would like a list of those with whom I could share. ☐

I will share with. ☐

Name.....

Address.....

.....

.....

.....

e-mail.....

I agree to show my certificate of insurance to the leader at the start of the tour and have read the society' Safety Code. ☐

Signed.....

Please return your completed form and deposit to: -

John D. Scott

55 Hertzog School Road

Mertztown, PA 19539 USA

***Reservations will be on a first come, first served basis, as places are limited.
Deposit of \$300 is due by November 30, 2004.**

British Pteridological Society / Hardy Fern Foundation
MID-ATLANTIC STATES EXCURSION JUNE-JULY 2005
FINAL CIRCULAR — September 2004

PROSPECTIVE PARTICIPANTS:

JOHN SCOTT in Pennsylvania is arranging our tour for June 28 – July 8, 2005. John is a director at large of the HHF. As much as possible correspondence will be to John by email at bps2005@aol.com and he will maintain a web site at <http://www.bps2005.org> All respondents will be placed on an email distribution list and will receive regular updates. So please send a simple email to the above email address stating your interest.

The tentative itinerary is included. The number of initial respondents to this prospectus and bus arrangements will dictate the size of the group.

HOUSING: All housing will be at first-rate motels. Rooms will be non-smoking and have 2 queen or two beds unless you indicate otherwise. We will balance the number of moves to limit the daily travel time. Since most of you will be coming from UK/Europe and western US, motel reservations are being made for the day before the tour starts (Monday) and Friday after the farewell dinner.

MEALS: All breakfasts will be either free continental or buffet at the motel. Lunches will generally be box lunches in the field, one lunch buffet is planned for Millbrook (Poughkeepsie). Dinners that aren't included will be available at the motel or in walking distance.

Pre and Post Excursion: There is a lot to see in historic south-eastern PA and we will add links to things that you show an interest in.

PAYMENTS: Paying in US dollars for the Tour 2005.

I can't accept a credit card payment. But I do have a PAYPAL account.

Anyone can set up a personal account that is secured by a bank account (**I cannot except PAYPAL from accounts secured by a credit card.**)

There is no charge for transferring funds, but there is a charge for currency exchange. It is the lowest that I've been able to find and will be used for the Tour.

Payments for the Tour will be in US dollars.

1. Check. in US dollars.
2. PayPal payments to bps2005@aol.com in USD, GBP or Euros

Check out www.paypal.com for details.

COST: The estimated cost is \$1600 (900 £) as of this writing. The single room supplement is \$660.

TRIPDETAILS: We will be travelling by charter bus. Participants will be expected to travel with the group on the bus. For those arriving early or staying on after the tour who wish to rent a car (be sure to have a proper driver's license).

CLOTHING: Weather in the area is generally dry except for showers. The daytime temperature is generally mid to low 80s, though a heat wave up to 95 is possible. Please bring a range of suitable clothing. Shorts, a light jacket and a sweater are all recommended for the area. Some people are paranoid about tick protection and wear full regalia even in the heat of summer. Most of the motels will have a swimming pool, some indoor, so bring a bathing suit if you'd enjoy a dip. Hiking boots are optional.

2003 Garden Evaluations

Hardy Fern Foundation Evaluation Form

Date: Fall, 2003

Garden Name: Birmingham Botanical Gardens

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It Borne Spore In The Past Year	Garden Worthiness Rate 1-5 Low to High
Asplenium x ebenoides	2002	3	1	no	1
Athyrium filix-femina 'Branford Beauty'	2001	3	10	yes	3
Athyrium otophorum	1994	2	14	yes	4
Adiantum venustum	1996	3	10	yes	3
Blechnum penna-marina	1998	3	3	no	2
Cyrtomium falcatum 'Rochfordianum'	1998	5	18	yes	4
Cyrtomium fortunei	1998	5	20	yes	4
Dryopteris affinis	1996	3	16	Yes	5
Dryopteris affinis 'Azorica'	1998	4	12	yes	3
Dryopteris x australis	2000	3	36	yes	5
Dryopteris championii	1996	3	14	yes	3
Dryopteris clintoniana	2002	3	12	yes	4
Dryopteris cristata	1998	2	15	yes	4
Dryopteris cycadina	1995	2	22	yes	5
Dryopteris filix-mas					
'Undulata Robusta'	1994	2	22	yes	5
Dryopteris filix-mas 'Crispatissima'	2001	3	11	no	4

Garden Name: Birmingham Botanical Gardens

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It		Garden Worthiness Rate 1-5 Low to High
				Borne	Spore	
				In The	In The	
Dryopteris indusiata	2002	1	20	yes		5
Dryopteris lacera type? (uniformis)	1998	5	22	yes		5
Dryopteris lepidopoda	1998	3	10	yes		3
Dryopteris pacifica	2000	3	14	yes		4
Dryopteris polylepis	2000	3	17	yes		5
Dryopteris pseudo filix-mas	1996/'02	4/3	28	yes		5
Dryopteris pycnopteroides	2000	3	22	yes		5
Dryopteris sacrosancta	1995	5	22	yes		5
Dryopteris scottii	2001	1	7	no		1
Dryopteris stewartii	1998	5	28	yes		5
Dryopteris sublacera	1997	3	15	yes		4
Dryopteris wallichiana	1995	2	13	no		2
Osmunda regalis 'Purpurascens'	1994	1	20	yes		4
Phegopteris decursive-pinnata	1994	Many	21	yes		5
Polypodium interjectum	1998	5	7	yes		2
Polystichum aculeatum	2001	3	14	yes		5
Polystichum falcinellum	2000	0	0	0		0
Polystichum luctuosum	2002	2	12	yes		4
Polystichum neolobatum	1998/02	2/2	15	yes		5
Polystichum setiferum	1997	3	19	yes		5
Polystichum setiferum 'Divisilobum'	1994	1	14	no		3

Temperatures and rainfall in Birmingham during the past year have both been considerably outside the norm. A late April freeze damaged early frond growth of a majority of the ferns. The summer (2003) has been relatively mild. Since June 2003, temperatures have been above 90 degrees on only 14 days. Last year (summer 2002), temperatures exceeded 90 degrees on 44 days between June 1 and September 1. Rainfall amounts since March 2003 are 20 inches above normal. *Dryopteris* spp. and *Polystichum* spp. that dislike continually wet roots and frequently wetted foliage have declined significantly due to fungal diseases within the past six weeks. Other species, which enjoy an abundance of moisture, are more lush and robust than typical for late summer in Birmingham.

Submitted by: Karen and Dan Jones 205-988-0480; djones5038@charter.net

Date: September 18, 2003

Garden name: Coastal Maine Botanical Garden

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It Borne Spore In The Past Year	Ornamental Rating 1-5 (5 being the best)	Ease of Cultivation 1-5 (5 being the best)	Commercial Value 1-5 (5 being the best)
<i>Adiantum aleuticum</i>	1999	3	28	yes	5		yes
<i>Adiantum aleuticum</i>	2000	3	24	yes	5		yes
<i>Asplenium x ebenoides</i>	2002	none					
<i>Asplenium trichomanes</i> (not a HFF plant)	2001	3	4	no	4		maybe
<i>Athyrium</i> f.f. 'Branford Beauty'	2001	3	14	yes	4		
NOTE: Some insect damage.							
<i>Athyrium</i> f.f. 'Frizelliae'	1999	3	6.5	no	4		yes
<i>Athyrium niponicum</i> 'Pictum' (not a HFF plant)	1996	3	11	yes	5		yes
<i>Dryopteris x australis</i>	2000	2	19	no	4		maybe
<i>Dryopteris clintoniana</i>							
NOTE: This fern is native to the Northeast U.S., however it has not done well for us. Several leaves deformed.	2002	3	12	no	2		doubtful
<i>Dryopteris crassirhizoma</i>	2000	3	17	yes	5		yes

Garden name: Coastal Maine Botanical Garden

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It Borne Spore In The Past Year	Ornamental Rating 1-5 (5 being the best)	Ease of Cultivation 1-5 (5 being the best)	Commercial Value 1-5 (5 being the best)
<i>Dryopteris cristata</i>	1999	2	9	no	2		doubtful
NOTE: Again, this is a native fern but it is not doing well in the HFF garden. Possibly it needs a wetter environment.							
<i>Dryopteris cycadina</i>	2002	3	2.5	no	NA		NA
NOTE: These plants were accidentally trampled while garden staff were building a path. We will evaluate these next year.							
<i>Dryopteris filix-mas</i> 'Crispatissima'	2001	3	9	no	4-5		yes
<i>Dryopteris hondoensis</i>	2001	3	12	yes (1 plant)	4		yes
<i>Dryopteris indusiata</i>	2002	1	10	no	1		no
NOTE: This fern planted between the roots of a very large tree. After it is moved, we can evaluate it better.							
<i>Dryopteris polylepis</i>	2000	3	17	yes	5		yes
<i>Dryopteris pseudo-filix-mas</i>	2002	3	14	yes	3		maybe
<i>Dryopteris pycnopteroides</i>	2000	3	14.5	yes	5		yes
<i>Dryopteris remota</i>	2000	3	23.5	yes	5		yes
<i>Dryopteris scottii</i>	2001	2	3	no	1		no
<i>Dryopteris uniformis</i>	1999	2	15	yes	5		yes
<i>Dryopteris villarii</i>	2000	2	18	yes	4		yes
NOTE: This is the one lime-loving plant that is doing reasonably well for us.							
<i>Polystichum aculeatum</i>	2001	3	13	yes	4		yes
<i>Polystichum munitum</i> (not a HFF plant)	2000	1	29.5	yes	5		yes
<i>Polystichum neolobatum</i>	2002	3	9	no	3		maybe

Growing conditions this past year, including temperature high and low.

Unlike recent years, this year, during the growing season, we had mostly adequate rain (with some dry spells) and temperatures were moderate. The highest temperature was 90 F (22 Aug. 2003) and the lowest temperature for the winter of 2002-2003 was 20F (14 Feb. 2003). Thus these were very good conditions for ferns. The winter was consistently cold, with a good snow pack, so the ferns did not suffer from any premature thawing prior to spring. The only problem for gardens here this year is a persistent rain and groundwater deficit caused by under average rainfall as well as previous drought years.

Those individual plants that are doing less well are planted close to tree roots. We will try in the future to avoid this problem.

Are there ferns in your garden that received a low rating? If so, what would you say are the reasons?

A. ebenoides died. It requires limestone conditions, which the fern garden does not yet offer. It is curious that *D. clintoniana* and *D. cristata* are not doing well; both these plants are native to the northeast U.S. It is possible that they are not in an adequately humussy and damp environment. *D. pseudo filix-mas*: we may be too far north for it to do well. *D. indusiata*: the single plant that we have is planted too close to tree roots; it will be moved. *D. scottii*: this is listed in one source as best for zones 8-10. On the subject of tree roots, we have several groups of plants where one will do well, and the other two less so. Often we notice, that the individual plants that are doing less well are planted close to tree roots. We will try to avoid this problem.

Other comments?

On the subject of the ease of cultivation, at present our garden is not set up to accommodate plants that require special conditions, e.g., a very damp location, or the pH of a limestone cobble. For the present, we "force" the plants into a "one-size-fits-all" environment. Perhaps we should consider creating some special environments. On the whole, however, we think that the garden is well sited and that the plants have done remarkably well.

Garden name: Coastal Maine Botanical Garden
Completed by Catharine Guiles and Joanne Sharpe
Date: Sept. 18, 2003
Phone: 207-926-4017 (C. Guiles)
E-mail address: cguiles@maine.rr.com

Hardy Fern Foundation Evaluation Form

Date: August , 2003

Garden name: Dallas Arboretum

Genus, Species, Variety or Cultivar	# of Ferns Alive	Average Frond Length	Has It Borne Spore (in.)	Ornamental Rating 1-5 In The Past Year	Ease of Cultivation 1-5 (5 being the best)	Commercial Value 1-5 (5 being the best)
<i>Adiantum capillus-veneris</i>	31	12"	N	5	4	4
<i>Adiantum hispidulum</i>	6	9"	N	5	4	4
<i>Athyrium filix-femina</i>	16	16"	Y	5	4	4
<i>Athyrium niponicum</i> 'Pictum'	33	10"	Y	5	5	5
<i>Athyrium</i> x 'Ghost'	10	15"	Y	5	5	5
<i>Cheilanthes tomentosa</i>	1	17"	N	5	3	5
<i>Cyrtomium caryotideum</i>	12	9"	N	5	5	5
<i>Cyrtomium falcatum</i> 'Eco Jade'	1	8"	Y	5	5	5
<i>Cyrtomium falcatum</i> 'Mayi'	2	15"	Y	5	5	5
<i>Cyrtomium falcatum</i> 'Minutissima'	1	12"	Y	5	5	5
<i>Cyrtomium falcatum</i> 'Rochfordianum'	82	16"	Y	5	5	5
<i>Cyrtomium fortunei</i>	5	13"	Y	5	5	5
<i>Cyrtomium macrophyllum</i>	81	10"	N	5	5	5
<i>Cyrtomium macrophyllum</i> 'Nana'	3	8"	Y	5	5	5
<i>Cystopteris bulbifera</i>	8	30"	Y	5	2	2
<i>Doodia media</i>	1	11"	Y	2	2	2
<i>Dryopteris affinis</i>	1	12"	Y	4	2	2

Dryopteris affinis 'Affinity'	30	10"	N	4	2	2
Dryopteris affinis 'Crispa Gracilis'	1	4"	N	3	2	2
Dryopteris bissetiana	2	16"	Y	3	2	2
Dryopteris championii	72	14"	Y	4	3	3
Dryopteris clintoniana	6	13"	Y	3	2	2
Dryopteris crassirhizoma	12	8"	N	3	2	2
Dryopteris cycadina	71	9"	Y	5	5	5
Dryopteris erythrosora	122	21"	Y	5	5	5
Dryopteris erythrosora 'Brilliance'	29	11"	Y	5	5	5
Dryopteris erythrosora 'Prolifica'	6	9"	Y	5	5	5
Dryopteris expansa	1	5"	N	5	5	5
Dryopteris filix-mas '	1	11"	N	5	5	5
Dryopteris filix-mas 'Crispa Cristata'	4	14"	N	3	3	3
Dryopteris filix-mas 'Furcans'	4	9"	N	3	3	3
Dryopteris filix-mas 'Linearis Polydactyla'	2	7"	N	3	3	3
Dryopteris fuscipes	1	20"	N	3	3	3
Dryopteris goldiana	1	15"	N	4	3	3
Dryopteris lacera	6	12"	Y	3	3	3
Dryopteris lepidopoda	1	11"	Y	3	3	3
Dryopteris marginalis	2	10"	Y	3	3	3
Dryopteris odontoloma	2	18"	Y	4	3	3
Dryopteris pseudomas	2	21"	Y	3	3	3
Dryopteris pycnopteroides	6	21"	N	3	3	3
Dryopteris remota	17	14"	Y	3	3	3
Dryopteris scottii	1	14"	Y	3	3	3

Garden name: Dallas Arboretum

Genus, Species, Variety or Cultivar	# of Ferns Alive	Average Frond Length	Has It Borne Spore (in.)	Ornamental		Ease of Cultivation		Commercial Value
				Rating				
				1-5 In The Past Year		1-5 (5 being the best)		1-5 (5 being the best)
Dryopteris sieboldii	2	14"	N	3		3		3
Dryopteris tokyoensis'	22	13"	Y	3		3		3
Dryopteris uniformis	2	16"	Y	3		3		3
Dryopteris villarii	3	16"	Y	3		3		3
Dryopteris wallichiana	1	15"	Y	3		3		3
Dryopteris wallichiana 'Molten Lava'	1	11"	Y	3		3		3
Dryopteris x australis	25	36"	Y	5		5		5
Dryopteris celsa	8	18"	Y	5		3		3
Dryopteris x complexa 'Stableri Crisped'	2	9"	N	3		3		3
Dryopteris x complexa 'Rumpelstiltskin'	1	13"	Y	3		3		3
Matteuccia struthiopteris	99	28"	Y	5		5		5
Onoclea sensibilis	129	22"	Y	5		5		5
Osmunda cinnamomea	3	24"	Y	5		5		5
Osmunda regalis	24	25"	N	5		5		5
Osmunda regalis 'Purpurascens'	5	17"	Y	5		5		5
Polypodium subauriculatum 'Knightii'	3	12"	N	3		3		3
Polystichum retropaleaceum	3	10"	Y	3		3		3
Polystichum acrostichoides	12	16"	Y	5		4		4
Polystichum munitum	2	8"	N	4		3		3

Polystichum neolobatum	2	8"	N	4	3	3
Polystichum polyblepharum	13	16"	Y	5	5	5
Polystichum rotundatum 'Cristatum'	3	10"	?	4	3	3
Polystichum setiferum 'Congestum Cristatum'	3	11"	N	4	3	3
Polystichum setiferum (congestum)						
'Barfod Dwarf'	3	6"	N	4	3	3
Polystichum setiferum 'Dahlem'	4	20"	Y	4	3	3
Polystichum setiferum 'Divisilobum'	2	11"	N	4	3	3
Polystichum setiferum 'Herrenhausen'	2	10"	N	4	3	3
Polystichum setiferum 'Plumoso multilobum'	1	8"	N	4	3	3
Polystichum setiferum 'Plumosum'	2	13"	N	4	3	3
Polystichum setiferum 'Plumosum Bevis'	3	13"	N	4	3	3
Polystichum tsus-simense	53	11"	Y	5	4	4
Pteridium aquilinum	1	23"	N	3	3	3
Rumohra adiantiformis	15	10"	N	5	3	3
Thelypteris decursive-pinnata	5	21"	Y	5	5	5
Thelypteris torresiana	1	41"	Y	5	5	5
Thelypteris torresiana 'Eco Maiden Lace'	2	33"	Y	5	5	5
Thelypteris viridifrons	1	19"	Y	5	5	5
Thelypteris palustris	27	17"	N	5	5	5
Woodwardia orientalis	2	42"	Y	5	3	3

Date: June, 2003

Garden name: Fernwood Botanical Garden

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It Borne Spore In The Past Year	Ornamental Rating 1-5 (5 being the best)	Ease of Cultivation 1-5 (5 being the best)	Commercial Value 1-5 (5 being the best)
Asplenium x ebenoides	2002	2	6"	yes	2	2	2
Asplenium trichomanes	2002	0					
Cryptogramma crispa	2002	0					
Dryopteris clintoniana	2002	3	20 in.	yes	4	4	4
Dryopteris cycadina	2002	3	20 in.	yes	4	4	4
Dryopteris indusiata	2002	4	17 in.	yes	3	3	3
Dryopteris lepidopoda	2002	1	12 in.	yes	4	4	4
Dryopteris pacifica	2002	3	14 in.	yes	5	5	5
Dryopteris pseudo filix-mas	2002	3	22 in.	no	5	5	5
Dryopteris wallichiana	2002	1	10 in.	no	3	3	3
Polypodium interjectum	2002	1	6 in.	yes	1	1	1

Growing conditions this past year, including temperature high and low. Are there ferns in your garden that received a low rating? If so, what would you say are the reasons? Other comments?

When we planted these ferns, they had a rough start in life-some animal dug them up every night for a month, it was a dry summer, and the crowning insult came in late Fall-we had to maneuver a bucket truck over them to remove a downed tree. They did very well in 2003 and are very good this year.

Garden name: Fernwood Botanical Garden Completed by: Ann Desenberg - annd@qtm.net

Garden name: Georgeson Botanical Garden, Fairbanks, Alaska

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It		Ornamental Rating 1-5 (5 being the best)	Ease of Cultivation 1-5 (5 being the best)	Commercial Value 1-5 (5 being the best)
				Borne	Spore			
				In The Past Year				
Athyrium niponicum 'Branford Beauty'	2002	3/3	16	Yes		3	3	3
Cryptogramma acrostichoides	2004	10/10	6	Yes		Just Planted		
Dryopteris clintoniana	2003	2/2	12	Yes		2	2	2
Dryopteris crassirhizoma	1999	0/5				1	1	1
Gymnocarpium dryopteris	2003	1/1	14	Yes		4	4	4
Matteuccia struthiopteris	1996	4/4	40	Yes		5	5	5
Phegopteris connectilis	2003	5/5	20	Yes		4	4	4
Polystichum aculeatum	2002	3	12	No		3	3	3
Polystichum braunii	1995	4/10	24	Yes		3	3	3

Georgeson Bot Gdn, Fairbanks, AK

Growing conditions this past year, including temperature high and low. Are there ferns in your garden that received a low rating? If so, what would you say are the reasons? Other comments?

For the past three years, we have experienced milder than normal winters, so some ferns listed are surprise survivors (esp. Branford Beauty). Most exotic ferns do not survive for our entire trial period and only native such as Ostrich Fern can be recommended to home gardens so far. We keep trying, though! Our prize native, one lone *Dryopteris fragrans*, finally died after 10 years in the garden. We were surprised it lasted as long as it did, because our location, with its silt-loam soils is not recommended for this fern.

The 2003 Max temperature, 82 F, minimum -34.6F. Snowfall was a moderate 33.2 inches.

Garden name: Inniswood Botanical Garden

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It		Ornamental Rating 1-5 (5 being the best)	Ease of Cultivation 1-5 (5 being the best)	Commercial Value 1-5 (5 being the best)
				Borne	Spore			
				In The Past Year				
Athyrium filix-femina 'Vernoniae Cristata'	1994	3	18 in.	yes		5	5	5
Phyllitis scolopendrium	1994	2	9 in.	yes		5	4	5
Dryopteris erythrosora	1994	3	20 in.	yes		5	5	5
Dryopteris sacrosancta	1995	5	14 in.	yes		5	5	5
Dryopteris wallichiana	1995	3	25 in.	yes		5	5	5
Dryopteris affinis	1996	2	12 in.	no		4	4	4
Dryopteris pseudo-flix-mas	1996	5	30 in.	yes		5	5	5
Polystichum andersonii	1996	3	8 in.	no		3	3	3
Cyrtomium macrophyllum	1998	3	9 in.	no		5	5	5
Dryopteris affinis 'Crispa Barnes'	1998	5	18 in.	yes		5	5	5
Dryopteris pseudo-flix-mas	1998	5	16 in.	no		5	5	5
Dryopteris remota	1998	1	9 in.	no		4	4	4
Athyrium filix-femina 'Frizelliae'	1999	2	6 in.	no		4	4	5
Dryopteris bissetiana	1999	3	10 in.	yes		5	5	5
Dryopteris lacera 'Affinity'	1999	3	20 in.	yes		5	5	5

Dryopteris polylepis	1999	3	10 in.	yes	5	5	5
Dryopteris sieboldii	1999	3	3 in.	no	1	1	1
Dryopteris x australis	2001	3	19 in.	no	5	5	5
Dryopteris pacifica	2001	3	12 in.	yes	5	5	5
Dryopteris pycnopteroides	2001	3	15 in.	yes	5	5	5
Dryopteris hondoensis	2001	2	12 in.	no	5	5	5
Dryopteris filix-mas 'Crispatissima'	2001	3	10 in.	no	4	4	4

Garden name: Inniswood Metro Gardens Completed by: Carolyn Stamm

Date: August 2003 Phone: 1-614-895-6216

E-Mail address: mstamm@columbus.rr.com

Garden name: Rhododendron Species Botanical Garden

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It Borne Spore In The Past Year	Garden Worthiness Rate 1-5 Low to High
Adiantum aleuticum 'Subpumilum'	1990	6	8-10"	Yes	5
Adiantum pedatum	1990	1	25"	Yes	5
Adiantum venustum	1990	Many patches	22"	Yes	5
Adiantum viride-montanum	1990	1	24"	No	4
Arachnoides simplicior var. major	1990	4	20"	Yes	3
Asplenium trichomanes		many	6"	Yes	5
Asplenium trichomanes 'Incisum'	1991	4	14"	Yes	4
Athyrium otophorum	1990	5	18-24"	Yes	5
Blechnum cordatum	1999	12	10-36"	Yes	5
Blechnum niponicum	2000	3	9"	Yes	3.5
Blechnum penna-marina	1993	Many	12"	Yes	5
Blechnum spicant	1990	Many	36"	Yes	5
Blechnum spicant 'Serratum Rickard'	1990	4	30"	Yes	4
Ceterach officinarum	2001	3	3"	Yes	5
Cheilanthes lendigera	?	1	6"	No	2
Cryptogramma crispa		4	12"	Yes	5
Cyrtomium caryotideum	1991	4	16"	Yes	4
Cyrtomium lonchitoides	1994	8	22"	Yes	4

Cyrtomium macrophyllum	1990	4	26"	Yes	4
Doodia media	1999	12	14-16"	Yes	5
Dryopteris affinis	2001	3	36"	Yes	5
Dryopteris bissetiana	1999	3	14"	Yes	4
Dryopteris blanfordii	1997	7	26"	Yes	5
Dryopteris celsa	1994	3	24"	Yes	4
Dryopteris championii	1990	1	10"	Yes	4
Dryopteris corleyi	1999	5	24"	Yes	4
Dryopteris cycadina	1990	2	18"	Yes	3
Dryopteris cystolepidota	1994	7	27"	Yes	5
Dryopteris dilatata	1990	3	18"	Yes	5
Dryopteris erythrosora	1990	9	22"	Yes	5
Dryopteris erythrosora 'Prolifica'	1990	3	8"	No	4
Dryopteris expansa		Many	36-48"	Yes	4
Dryopteris filix-mas	1990	2	42"	Yes	5
Dryopteris formosana	1991	7	23"	Yes	5
Dryopteris kashmiriana	1999	7	24"	Yes	4
Dryopteris lacera	1990	1	18"	No	3
Dryopteris lepidopoda	1994	4	24"	Yes	5
Dryopteris ludoviciana	1990	2	10"	No	3
Dryopteris marginalis	1999	13	12"	Yes	3
Dryopteris namegatae	2001	3	26"	Yes	4
Dryopteris oreades	1999	2	18"	Yes	3
Dryopteris pacifica	1999	9	20"	Yes	4
Dryopteris polylepis	1990	1	23"	Yes	4

Garden name: Rhododendron Species Botanical Garden

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It		Garden Worthiness Rate 1-5 Low to High
				Borne	Spore	
				In The	In The	
				Past Year		
Dryopteris polylepis	2000	12	14"	Yes		4
Dryopteris pseudo filix-mas	1990	6	28"	Yes		5
Dryopteris pycnopteroides	1992 and 1999	11	10-15"	Yes		3
Dryopteris sacrosancta	1996	8	20"	Yes		4
Dryopteris scottii	2001	12	12"	Yes		2
Dryopteris sieboldii	1990 and 1997	11	30" +	Yes		4
Dryopteris stewartii	1998	5	26"	Yes		3
Dryopteris tokyoensis	2001	5	32"	Yes		5
Dryopteris uniformis	1999	11	24"	Yes		4
Dryopteris wallichiana	1999	11	36"	Yes		5
Dryopteris x australis	2000	5	34"	Yes		5
Gymnocarpium dryopteris	1990	Many	8"	Yes		5
Gymnocarpium dryopteris 'Plumosum'	1990	Many	8"	Yes		5
Gymnocarpium oyamense	1997	4 patches	12"	Yes		4
Hypolepis punctata	1996	1 patch	18"	Yes		3
Matteuccia struthiopteris	1990	Many	26"	Yes		4
Onoclea sensibilis		Lg. Patch	32"	Yes		4
Osmunda cinnamomea	1997	Many	52"	Yes		5
Osmunda claytoniana	1990	1	14"	Yes		2

<i>Osmunda regalis</i>	1996	Many	48"	Yes	5
<i>Phyllitis scolopendrium</i>	1990	7-10	10-23"	Yes	5
<i>Polypodium interjectum</i>	1998	3	10-12"	Yes	3
<i>Polypodium scolieri</i>	1990	Lg. Patch	22"	Yes	5
<i>Polystichum acrostichoides</i>	1990	5	14"	Yes	3
<i>Polystichum aculeatum</i>	1990	1	18"	Yes	3
<i>Polystichum aculeatum</i>	2001	9	15"	Yes	3
<i>Polystichum braunii</i>	1990	30	12"	Yes	5
<i>Polystichum californicum</i>	1991	3	12"	Yes	2
<i>Polystichum luctuosum</i>	2002	25	18"	Yes	3
<i>Polystichum makinoi</i>	1991	9	12-24"	Yes	5
<i>Polystichum neolobatum</i>	1991	4	18"	Yes	5
<i>Polystichum piceopaleaceum</i>	2002	7	16"	Yes	4
<i>Polystichum polyblepharum</i>	1990	Many	12-15"	Yes	5
<i>Polystichum polyblepharum</i>	2001	30+	12"	Yes	5
<i>Polystichum retrosopalaecum</i>	1990	9	24"	Yes	3
<i>Polystichum rigens</i>	2001	9	22"	Yes	3
<i>Polystichum squarrosus</i>	2001	2	10"	Yes	4
<i>Polystichum tsus-simense</i>	1990	5	20"	Yes	5
<i>Polystichum x illyricum</i>	1990	1	16"	Yes	2
<i>Polystichum xiphophyllum</i>		3	16"	Yes	3
<i>Rumohra adiantiformis</i>	1999	3	3-5"	Yes	1
<i>Woodsia intermedia</i>	2000	5	8"	Yes	5

Garden name: Rhododendron Species Botanical Garden

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It			Garden Worthiness Rate 1-5 Low to High
				Borne			
				Spore			
				In The Past Year			
Woodwardia areolata	1990	Many	16"	Yes		5	
Woodwardia fimbriata		1	24"	Yes		5	
Woodwardia unigemmata	2000	3	36"	Yes		5	

Garden name: Rhododendron Species Botanical Garden Completed by: Michelle Bundy

Date: September 2003Phone: 206-835-1290

E-Mail address: thebundys5@comcast.net

Garden name: Stephen F. Austin State University Arboretum

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It			Garden Worthiness Rate 1-5 Low to High
				Borne	Spore	In The	
				Past Year			
Cyrtomium caryotideum	97	5	6	no		2	
Cyrtomium falcatum 'Rochfordianum'	98	5	18-24	yes		5	
Cyrtomium fortunei	97	4	18	yes		4	
Cyrtomium macrophyllum	97	2	8	yes		2	
Doodia media	02	3	7-8	Yes		4	
Dryopteris affinis var. Azorica	98	1	10	yes		3	
Dryopteris x australis	02	5	24-30	yes		5	
Dryopteris bissetiana	99	1	12	yes		3	
Dryopteris championii	97	1	12-15	yes		3	
Dryopteris clintoniana	02	1	8-10	yes		2	
Dryopteris corleyi	99	1	12-15	yes		4	
Dryopteris crassirhizoma	02	1	15	no		3	
Dryopteris cycadina	02	3	12-15	yes		4	
Dryopteris lacera affinity	98	3	12-15	yes		4	
Dryopteris pseudo filix-mas	97	5	18	yes		5	
Dryopteris pseudo filix-mas	02	3	15	yes		4	
Dryopteris pycnopteroides	00	3	15	yes		4	

Garden name: Stephen F. Austin State University Arboretum

Genus, Species, Variety or Cultivar	Year Planted	# of Ferns Alive	Average Frond Length (in.)	Has It		Garden Worthiness Rate 1-5 Low to High
				Borne	Spore	
				In The	In The	
				Past Year		
Dryopteris sacrosancta	97	5	15	yes		5
Dryopteris sieboldii	97	3	10	yes		3
Dryopteris sublacera	97	1	18	yes		4
Dryopteris villarii	00	1	12-18	yes		3
Polystichum aculeatum	01	3	10-12	yes		4
Polystichum neolobatum	02	3	8-10	yes		4
Polystichum luctuosum	02	3	8-12	yes		4
Polystichum setiferum	97	2	10-12	yes		3
Polypodium scouleri	02	3	3-4	no		2

Growing conditions this past year, including temperature high and low. Are there ferns in your garden that received a low rating? If so, what would you say are the reasons? Other comments?

High summer temperatures and low rainfall.

Garden name: Stephen F. Austin State University Arboretum

Completed by: Roger Hughes and Susan K. Williams

Date: March 4, 2004 Susan Williams 936-639-4891, gapeach@lcc.net

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